

Improved electroluminescent and photonic devices with integrated logic and control circuits are disclosed. Low mobility, contact barrier, space charge limitation and carrier balancing are provided solutions that increase efficiency, reliability and longevity of the devices. Device power loss and power requirements are reduced. True-ohmic contact materials allow a gate-controlled, light emitting organic triode MESFET configuration that eliminates commonly used ITO thereby increasing luminous output, and providing ease of address and control by integrally fabricated complementary MESFET address and control circuitry. The devices can be fabricated by printing or by weaving appropriate materials, and can be configured as color displays.